

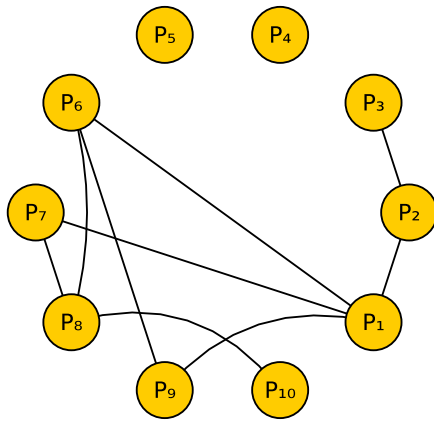
AI Planning

Exercise Sheet 9

Date: January 9, 2015
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Exercise 9.1

(a) Compatibility graph:



Maximal cliques: $\{P_1, P_2\}$, $\{P_1, P_6, P_9\}$, $\{P_1, P_7\}$, $\{P_2, P_3\}$, $\{P_4\}$, $\{P_5\}$, $\{P_6, P_8\}$, $\{P_7, P_8\}$, $\{P_8, P_{10}\}$.

(b)

$$\begin{aligned}
 h^{\mathcal{C}} &= \max\{h^{P_1} + h^{P_2}, h^{P_1} + h^{P_6} + h^{P_9}, h^{P_1} + h^{P_7}, h^{P_2} + h^{P_3}, h^{P_4}, h^{P_5}, h^{P_6} + h^{P_8}, h^{P_7} \\
 &\quad + h^{P_8}, h^{P_8} + h^{P_{10}}\} \\
 &= \max\{h^{\{at-goal_{s2}\}} + h^{\{at-goal_{s1}, position_{s1}\}}, h^{\{at-goal_{s2}\}} + h^{\{at-goal_{s1}, content_H\}} + \\
 &\quad h^{\{content_A, content_E\}}, h^{\{at-goal_{s2}\}} + h^{\{at-goal_{s1}, content_G\}}, h^{\{at-goal_{s1}, position_{s1}\}} + \\
 &\quad h^{\{at-goal_{s2}, position_{s2}\}}, h^{\{at-goal_{s1}, position_{s1}, position_p\}}, h^{\{position_{s1}, position_p\}}, \\
 &\quad h^{\{at-goal_{s1}, content_H\}} + h^{\{at-goal_{s2}, content_D\}}, h^{\{at-goal_{s1}, content_G\}} + h^{\{at-goal_{s2}, content_D\}}, \\
 &\quad h^{\{at-goal_{s2}, content_D\}} + h^{\{at-goal_{s1}, content_Q\}}\}
 \end{aligned}$$

(c)